Space Weather Forecast

Issued on Wednesday 12 March 2025 at 01:17 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of isolated Moderate-class flares. G1/Minor Storms likely days 2 & 3, chance G2/Moderate Storms. Active fluence expected days 1 & 2.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Moderate, with an isolated Moderate-class flare observed at 11/1304 UTC from a small region in the northwest. There are ten regions on the Earth-facing disc. The main region of interest resides in the northeast, and has seen continued development in areal extent and remains magnetically complex. The aforementioned small region in the northeast continues to weaken, however it was responsible for most of the flare activity in the past 24 hours. Most other spots have shown little change and are generally stable at present.

No Earth-directed CMEs have been observed.

Solar Wind / Geomagnetic Activity: Solar winds showed a declining connection to a coronal hole. Wind speeds were initially strong, declining to slow-ambient levels by the end of the period. Interplanetary Magnetic Field started weak and gradually rose to moderate. The north-south component was weakly variable initially, with one sustained moderately negative period 11/2130-2400UTC. Geomagnetic activity was Quiet to Unsettled (Kp 1-3).

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low activity is most likely, with a chance of isolated Moderate-class flares.

Solar Wind / Geomagnetic Activity: There are no CMEs likely to impact Earth, however a weak glance cannot be completely ruled out on Day 1 (11 Mar). Ongoing fast winds are expected to continue to ease through Days 1-2 (11-12 Mar), likely reaching background levels. The next fast wind enhancement is most likely to occur during Day 3 (13 Mar), with elevated to strong wind speeds expected.

Geomagnetic activity is expected to be Quiet to Unsettled through Days 1 and 2, with a decreasing chance of isolated Active intervals. On Days 3 and 4 a spell of Active to G1/Minor Storms are likely, with the potential for isolated G2/Moderate storm intervals.

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Energetic Particles / Solar Radiation: The count rate of energetic particles is most likely to remain at background levels.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	20	70	60	20
Strong	G3	No	1	5	5	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	Yes	40	40	50	50
Very Active	R3-R5 (X Class)	No	5	5	5	5

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	10	15	15
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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